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DSP Servo System for Satellite Scanning

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Electrical Engineering Technology

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Final Report

Project: DSP Servo System

For

Satellite Scanning

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&

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ABSTRACT

OF

THE SERVO IR&D TASK

This task was a combined research effort between ITT Aerospace/Optical Division and IPFW.

Satellite scanning and satellite imaging are two very broad subjects. A generalized discussion of both subjects is included to provide some insight to the servo IR&D task.

The radiometers ITT Aerospace/Optical Division is developing for the GOES program uses analog and digital techniques to control the scan system. Many large circuit boards are used to implement this method of servo control.

The servo IR&D task explored the feasibility of using a single high-speed microprocessor (i.e. TMS320C25) to control a satellite scan system. The system consisted of the TMS320C25 SWDS (Software Development System), a DC brushless motor, 20-bit optical encoder, power amplifier, power supplies and an Analog Interface Board (AIB). The encoder readout board (developed by Steve Buffmeyer and I) monitored the data bus at the output of the optical encoder and provided a means of zeroizing the optical encoder.

Currently, ITT's plans for next-generation radiometers baseline the technology explored in this research.

Table of Contents

Table of Figures